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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
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ART UNIT	PAPER NUMBER
2622	

DATE MAILED: 07/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/910,604	HARADA, KOUICHI	
	Examiner	Art Unit	
	Nelson D. Hernandez	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,5-7 and 9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5-7 and 9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 July 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 7, 2006 has been entered.

Specification

2. The Examiner acknowledges the new title filed on June 7, 2006. New title is acceptable.

Response to Amendment

3. The Examiner acknowledges the amended claims filed on June 7, 2006. Claims 1 and 5-7 have been amended. Claim 9 has been newly added.

Response to Arguments

4. Applicant's arguments with respect to claims 1, 2 and 5-7 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 2, 5-7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueda, US Patent 4,837,630 in view of Morimoto, US Patent 5,969,759.

Regarding claim 1, Ueda discloses a solid-state image apparatus comprising: an image section having a plurality of pixels (Fig. 1: 11) arranged two dimensionally in the horizontal direction and in the vertical direction (See fig. 1), the image section comprising a first area formed of a first pixel group (even lines in the image sensor as shown in figs. 4C and 4D) and a second area formed of a second pixel group (odd lines in the image sensor as shown in figs. 4A and 4B), and the first area and the second area being disposed adjacent to each other in the horizontal direction (the odd and even lines are arranged in the whole pixel area, therefore, the first and second areas are disposed adjacent to each other in the horizontal and vertical direction); a first electric-charge transfer (Fig. 1: 17) section disposed outside the image area for transferring the signal electric charges of the first area in the horizontal direction; a second electric-charge transfer section (Fig. 1: 18) extending across the entire width of the image section and disposed outside the image area (See fig. 1) for transferring the signal electric charges of the second area in the horizontal direction; and driving means (clock,

see col. 2, lines 51-60; col. 3, lines 36-50) for driving the first and second electric-charge transfer sections in an identical direction (See also fig. 1 and fig. 4E), wherein the first and second electric-charge transfer sections are disposed such that the first electric-charge transfer section transfers only the signal electric charges of the first area and the second electric-charge transfer section transfers only the signal electric charges of the second area (By using switches 13 as shown in figs. 4A-4D; see col. 3, line 36 – col. 4, line 52); and further comprising a vertical transfer section (Fig. 1: 15) for transferring the signal electric charges of the second area to the second electric-charge transfer section without passing through the first electric-charge transfer section (col. 3, lines 36-50), wherein the first electric-charge transfer section is disposed between the first area and the second electric-charge transfer section (See horizontal CCD 17 being disposed between first area (even lines area) and the horizontal CCD 18 as shown in fig. 1) and wherein the vertical transfer section is disposed between the second area and the second electric-charge transfer section (See vertical CCD 15 disposed between the second area (odd lines area) and the horizontal CCD 18) (Col. 2, lines 38-60; col. 3, lines 36-52; see also col. 4, line 53 – col. 5, line 37).

Ueda does not explicitly disclose that all of the pixels in any one of said column of said image section to be read out of the solid-state image apparatus are transferred to only one of said first electric-charge transfer section and said second electric-charge transfer section.

However, Morimoto teaches a solid-state image apparatus (See fig. 3) comprising an image section having a plurality of pixels (referred to as photodiodes 101-1) arranged two dimensionally in the horizontal direction and in the vertical direction

(See fig. 3), the image section comprising a first area formed of a first pixel group (Fig. 3: 101a) and a second area formed of a second pixel group (Fig. 3: 101b), and the first area and the second area being disposed adjacent to each other in the horizontal direction (See fig. 3), a first electric-charge transfer section (Fig. 3: 102a) disposed outside the image area for transferring the signal electric charges of the first area in the horizontal direction, and a second electric-charge transfer section (Fig. 3: 102b) disposed outside the image area for transferring the signal electric charges of the second area in the horizontal direction, and driving means for driving the first and second electric-charge transfer sections in an identical direction (toward the output sections 103a and 103b; col. 5, lines 61+); wherein the first and second electric-charge transfer sections are disposed such that the first electric-charge transfer section transfers only the signal electric charges of the first area (See electric-charge transfer section 102a can transfer only the signals of the area 101a) and the second electric-charge transfer section transfers only the signal electric charges of the second area (See electric-charge transfer section 102b can transfer only the signals of the area 101b); and further comprising a vertical transfer section (Fig. 3: 104b) for transferring the signal electric charges of the second area to the second electric-charge transfer section without passing through the first electric charge transfer section (Col. 5, line 23 – col. 6, line 34), wherein the vertical transfer section is disposed between the second area and the second electric-charge transfer section (See fig. 3); and wherein all of the pixels in any one of said column (i.e. columns in area 101a or columns in area 101b) of said image section to be read out of the solid-state image apparatus are transferred to only one of said first electric-charge transfer section and said second electric-charge

transfer section (as shown in fig. 3, all the pixels in the columns of area 101a are transferred to only the first electric-charge transfer section 102a and all the pixels in the columns of area 101b are transferred to only the first electric-charge transfer section 102b) (Col. 5, line – col. 6, line 34; col. 7, lines 8-49). Having all of the pixels in any one of said column of said image section to be read out of the solid-state image apparatus transferred to only one of said first electric-charge transfer section and said second electric-charge transfer section is advantageous because it would reduce the consumption of power without impairing the transfer efficiency and would also increase the read-out speed of signal-charges from the image sensor.

Therefore, taking the combined teaching of Ueda in view of Morimoto as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ueda by having all of the pixels in any one of said column of said image section to be read out of the solid-state image apparatus transferred to only one of said first electric-charge transfer section and said second electric-charge transfer section. The motivation to do so would have been to reduce the consumption of power without impairing the transfer efficiency as suggested by Morimoto (Col. 3, lines 24-26; col. 4, lines 26-47) and to increase the read-out speed of signal-charges from the image sensor.

Regarding claim 2, the combined teaching of Ueda in view of Morimoto teaches that the driving means drives the first and second electric-charge transfer sections by an identical driving signal (See Ueda, col. 2, lines 38-60; col. 3, lines 51-66; col. 5, lines 15-37; see also Morimoto, col. 6, lines 35-37).

Regarding claim 5, Ueda discloses a solid-state image apparatus comprising: an image section having a plurality of pixels (Fig. 1: 11) arranged two dimensionally in the horizontal direction and in the vertical direction (See fig. 1), the image section comprising a first area formed of a first pixel group (even lines in the image sensor as shown in figs. 4C and 4D) and a second area formed of a second pixel group (odd lines in the image sensor as shown in figs. 4A and 4B), and the first area and the second area being disposed adjacent to each other in the horizontal direction (the odd and even lines are arranged in the whole pixel area, therefore, the first and second areas are disposed adjacent to each other in the horizontal and vertical direction); a first electric-charge transfer (Fig. 1: 17) section disposed outside the image area for transferring the signal electric charges of the first area in the horizontal direction; a second electric-charge transfer section (Fig. 1: 18) extending across the entire width of the image section and disposed outside the image area (See fig. 1) for transferring the signal electric charges of the second area in the horizontal direction; and a vertical transfer section (Fig. 1: 15) for transferring the signal electric charges of the second area to the second electric-charge transfer section without passing through the first electric-charge transfer section (col. 3, lines 36-50), wherein the first electric-charge transfer section is disposed between the first area and the second electric-charge transfer section (See horizontal CCD 17 being disposed between first area (even lines area) and the horizontal CCD 18 as shown in fig. 1) and the vertical transfer section is disposed between the second area and the second electric-charge transfer section (See vertical CCD 15 disposed between the second area (odd lines area) and the horizontal CCD 18) (Col. 2, lines 38-60; col. 3, lines 36-52; see also col. 4, line 53 – col. 5, line 37).

Ueda does not explicitly disclose that all of the pixels in any one of said column of said image section to be read out of the solid-state image apparatus are transferred to only one of said first electric-charge transfer section and said second electric-charge transfer section.

However, Morimoto teaches a solid-state image apparatus (See fig. 3) comprising an image section having a plurality of pixels (referred to as photodiodes 101-1) arranged two dimensionally in the horizontal direction and in the vertical direction (See fig. 3), the image section comprising a first area formed of a first pixel group (Fig. 3: 101a) and a second area formed of a second pixel group (Fig. 3: 101b), and the first area and the second area being disposed adjacent to each other in the horizontal direction (See fig. 3), a first electric-charge transfer section (Fig. 3: 102a) disposed outside the image area for transferring the signal electric charges of the first area in the horizontal direction, and a second electric-charge transfer section (Fig. 3: 102b) disposed outside the image area for transferring the signal electric charges of the second area in the horizontal direction, and driving means for driving the first and second electric-charge transfer sections in an identical direction (toward the output sections 103a and 103b; col. 5, lines 61+); wherein the first and second electric-charge transfer sections are disposed such that the first electric-charge transfer section transfers only the signal electric charges of the first area (See electric-charge transfer section 102a can transfer only the signals of the area 101a) and the second electric-charge transfer section transfers only the signal electric charges of the second area (See electric-charge transfer section 102b can transfer only the signals of the area 101b); and further comprising a vertical transfer section (Fig. 3: 104b) for transferring

the signal electric charges of the second area to the second electric-charge transfer section without passing through the first electric charge transfer section (Col. 5, line 23 – col. 6, line 34), wherein the vertical transfer section is disposed between the second area and the second electric-charge transfer section (See fig. 3); and wherein all of the pixels in any one of said column (i.e. columns in area 101a or columns in area 101b) of said image section to be read out of the solid-state image apparatus are transferred to only one of said first electric-charge transfer section and said second electric-charge transfer section (as shown in fig. 3, all the pixels in the columns of area 101a are transferred to only the first electric-charge transfer section 102a and all the pixels in the columns of area 101b are transferred to only the first electric-charge transfer section 102b) (Col. 5, line – col. 6, line 34; col. 7, lines 8-49). Having all of the pixels in any one of said column of said image section to be read out of the solid-state image apparatus transferred to only one of said first electric-charge transfer section and said second electric-charge transfer section is advantageous because it would reduce the consumption of power without impairing the transfer efficiency and would also increase the read-out speed of signal-charges from the image sensor.

Therefore, taking the combined teaching of Ueda in view of Morimoto as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ueda by having all of the pixels in any one of said column of said image section to be read out of the solid-state image apparatus transferred to only one of said first electric-charge transfer section and said second electric-charge transfer section. The motivation to do so would have been to reduce the consumption of power without impairing the transfer efficiency as suggested by Morimoto (Col. 3, lines 24-26;

col. 4, lines 26-47) and to increase the read-out speed of signal-charges from the image sensor.

Regarding claim 6, claim 6 is a method claim of claim 1, therefore, limitations can be found in claim 1.

Regarding claim 7, Ueda discloses a camera system (See fig. 5) comprising: a solid-state image apparatus (See figs. 1, 4A-4F and 7-10), the solid-state image apparatus comprising: an image section having a plurality of pixels (Fig. 1: 11) arranged two dimensionally in the horizontal direction and in the vertical direction (See fig. 1), the image section comprising a first area formed of a first pixel group (even lines in the image sensor as shown in figs. 4C and 4D) and a second area formed of a second pixel group (odd lines in the image sensor as shown in figs. 4A and 4B), and the first area and the second area being disposed adjacent to each other in the horizontal direction (the odd and even lines are arranged in the whole pixel area, therefore, the first and second areas are disposed adjacent to each other in the horizontal and vertical direction); a first electric-charge transfer (Fig. 1: 17) section disposed outside the image area for transferring the signal electric charges of the first area in the horizontal direction; a second electric-charge transfer section (Fig. 1: 18) extending across the entire width of the image section and disposed outside the image area (See fig. 1) for transferring the signal electric charges of the second area in the horizontal direction; and driving means (clock, see col. 2, lines 51-60; col. 3, lines 36-50) for driving the first and second electric-charge transfer sections in an identical direction (See also fig. 1 and fig. 4E), a vertical transfer section (Fig. 1: 15) for transferring the signal electric charges of the second area to the second electric-charge transfer section without passing

through the first electric-charge transfer section (col. 3, lines 36-50), a signal processing circuit for combining output signals of the solid-state image apparatus to generate a signal corresponding to signal electric charges of one line in the image section (see col. 5, line 38 – col. 6, line 19), wherein the first electric-charge transfer section is disposed between the first area and the second electric-charge transfer section (See horizontal CCD 17 being disposed between first area (even lines area) and the horizontal CCD 18 as shown in fig. 1) and wherein the vertical transfer section is disposed between the second area and the second electric-charge transfer section (See vertical CCD 15 disposed between the second area (odd lines area) and the horizontal CCD 18) (Col. 2, lines 38-60; col. 3, lines 36-52; see also col. 4, line 53 – col. 5, line 37).

Ueda does not explicitly disclose that all of the pixels in any one of said column of said image section to be read out of the solid-state image apparatus are transferred to only one of said first electric-charge transfer section and said second electric-charge transfer section and an optical system for guiding incident light to the image section of the solid-state image apparatus.

However, Morimoto teaches a solid-state image apparatus (See fig. 3) comprising an image section having a plurality of pixels (referred to as photodiodes 101-1) arranged two dimensionally in the horizontal direction and in the vertical direction (See fig. 3), the image section comprising a first area formed of a first pixel group (Fig. 3: 101a) and a second area formed of a second pixel group (Fig. 3: 101b), and the first area and the second area being disposed adjacent to each other in the horizontal direction (See fig. 3), a first electric-charge transfer section (Fig. 3: 102a) disposed outside the image area for transferring the signal electric charges of the first area in the

horizontal direction, and a second electric-charge transfer section (Fig. 3: 102b) disposed outside the image area for transferring the signal electric charges of the second area in the horizontal direction, and driving means for driving the first and second electric-charge transfer sections in an identical direction (toward the output sections 103a and 103b; col. 5, lines 61+); wherein the first and second electric-charge transfer sections are disposed such that the first electric-charge transfer section transfers only the signal electric charges of the first area (See electric-charge transfer section 102a can transfer only the signals of the area 101a) and the second electric-charge transfer section transfers only the signal electric charges of the second area (See electric-charge transfer section 102b can transfer only the signals of the area 101b); and further comprising a vertical transfer section (Fig. 3: 104b) for transferring the signal electric charges of the second area to the second electric-charge transfer section without passing through the first electric charge transfer section (Col. 5, line 23 – col. 6, line 34), wherein the vertical transfer section is disposed between the second area and the second electric-charge transfer section (See fig. 3); and wherein all of the pixels in any one of said column (i.e. columns in area 101a or columns in area 101b) of said image section to be read out of the solid-state image apparatus are transferred to only one of said first electric-charge transfer section and said second electric-charge transfer section (as shown in fig. 3, all the pixels in the columns of area 101a are transferred to only the first electric-charge transfer section 102a and all the pixels in the columns of area 101b are transferred to only the first electric-charge transfer section 102b) (Col. 5, line – col. 6, line 34; col. 7, lines 8-49). Having all of the pixels in any one of said column of said image section to be read out of the solid-state image

apparatus transferred to only one of said first electric-charge transfer section and said second electric-charge transfer section is advantageous because it would reduce the consumption of power without impairing the transfer efficiency and would also increase the read-out speed of signal-charges from the image sensor.

Therefore, taking the combined teaching of Ueda in view of Morimoto as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ueda by having all of the pixels in any one of said column of said image section to be read out of the solid-state image apparatus transferred to only one of said first electric-charge transfer section and said second electric-charge transfer section. The motivation to do so would have been to reduce the consumption of power without impairing the transfer efficiency as suggested by Morimoto (Col. 3, lines 24-26; col. 4, lines 26-47) and to increase the read-out speed of signal-charges from the image sensor.

The combined teaching of Ueda in view of Morimoto fails to teach an optical system for guiding incident light to the image section of the solid-state image apparatus.

However, Official Notice is taken that the use of optical system for guiding incident light to the image section of a solid-state image apparatus is notoriously well known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ueda and Morimoto by having an optical system for guiding incident light to the image section of the solid-state image apparatus. The motivation to do so would have been to improve the image being captured depending on the application (increasing depth of field, zooming, focusing, etc).

Regarding claim 9, Ueda discloses a solid-state image apparatus (See fig. 1) comprising: an image section having a plurality of pixels (Fig. 1: 11) arranged two dimensionally in the horizontal and in the vertical direction (See fig. 1), the image section comprising a first area formed of a first pixel group (even lines in the image sensor as shown in figs. 4C and 4D) and a second area formed of a second pixel group (odd lines in the image sensor as shown in figs. 4A and 4B), and the first area and the second area being disposed adjacent to each other in the horizontal direction (the odd and even lines are arranged in the whole pixel area, therefore, the first and second areas are disposed adjacent to each other in the horizontal and vertical direction); a first electric-charge transfer section (Fig. 1: 17) disposed outside the image area for transferring the signal electric charges of the first area in the horizontal direction; a second electric-charge transfer section (Fig. 1: 18) extending across the entire width of the image section and disposed outside the image area (See fig. 1) for transferring the signal electric charges of the second area in the horizontal direction; and driving means (clock, see col. 2, lines 51-60; col. 3, lines 36-50) for driving the first and second electric-charge transfer sections in an identical direction (See also fig. 1 and fig. 4E), wherein the first and second electric-charge transfer sections are disposed such that the first electric-charge transfer section transfer only the signal electric charges of the first area and the second electric-charge transfer section transfers only the signal electric charges of the second area (By using switches 13 as shown in figs. 4A-4D; see col. 3, line 36 – col. 4, line 52); and further comprising a vertical transfer section (Fig. 1: 15) for transferring the signal electric charges of the second area to the second electric-charge transfer section without passing through the first electric-charge transfer section (Col. 3,

lines 36-50), and wherein the first electric-charge transfer section is disposed between the first area and the second electric-charge transfer section (See horizontal CCD 17 being disposed between first area (even lines area) and the horizontal CCD 18 as shown in fig. 1), and wherein the vertical transfer section is disposed between the second area and the second electric-charge transfer section (See vertical CCD 15 disposed between the second area (odd lines area) and the horizontal CCD 18) (Col. 2, lines 38-60; col. 3, lines 36-52; see also col. 4, line 53 – col. 5, line 37).

Ueda does not explicitly disclose that the electric charges of said first area are transferred directly from said first area to said first electric-charge transfer section without passing through any additional vertical transfer section between the first image area and the first electric-charge transfer section.

However, Morimoto teaches a solid-state image apparatus (See fig. 3) comprising an image section having a plurality of pixels (referred to as photodiodes 101-1) arranged two dimensionally in the horizontal direction and in the vertical direction (See fig. 3), the image section comprising a first area formed of a first pixel group (Fig. 3: 101a) and a second area formed of a second pixel group (Fig. 3: 101b), and the first area and the second area being disposed adjacent to each other in the horizontal direction (See fig. 3), a first electric-charge transfer section (Fig. 3: 102a) disposed outside the image area for transferring the signal electric charges of the first area in the horizontal direction, and a second electric-charge transfer section (Fig. 3: 102b) disposed outside the image area for transferring the signal electric charges of the second area in the horizontal direction, and driving means for driving the first and second electric-charge transfer sections in an identical direction (toward the output

sections 103a and 103b; col. 5, lines 61+); wherein the first and second electric-charge transfer sections are disposed such that the first electric-charge transfer section transfers only the signal electric charges of the first area (See electric-charge transfer section 102a can transfer only the signals of the area 101a) and the second electric-charge transfer section transfers only the signal electric charges of the second area (See electric-charge transfer section 102b can transfer only the signals of the area 101b); and further comprising a vertical transfer section (Fig. 3: 104b) for transferring the signal electric charges of the second area to the second electric-charge transfer section without passing through the first electric charge transfer section (Col. 5, line 23 – col. 6, line 34), wherein the vertical transfer section is disposed between the second area and the second electric-charge transfer section (See fig. 3); and wherein the electric charges of said first area (Fig. 101a) are transferred directly from said first area to said first electric-charge transfer section (Fig. 102a) without passing through any additional vertical transfer section between the first image area and the first electric-charge transfer section (As shown in fig. 3, the electric charges of the first area 101a are transferred directly from the said first area to the electric-charge transfer section 102a without passing through any additional vertical transfer section between the first image area and the first electric-charge transfer section; see also fig. 4) (Col. 5, line – col. 6, line 34; col. 7, lines 8-49). Having the electric charges of said first area are transferred directly from said first area to said first electric-charge transfer section without passing through any additional vertical transfer section between the first image area and the first electric-charge transfer section is advantageous because it would increase the read-out speed of the first area leading to an overall increase of speed in

the overall read-out of charges of the image sensor and it would also reduce the size of the image sensor.

Therefore, taking the combined teaching of Ueda in view of Morimoto as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Ueda by having the electric charges of said first area are transferred directly from said first area to said first electric-charge transfer section without passing through any additional vertical transfer section between the first image area and the first electric-charge transfer section. The motivation to do so would have been to increase the read-out speed of the first area leading to an overall increase of speed in the overall read-out of charges of the image section and to reduce the size of the solid-state image apparatus.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nelson D. Hernandez whose telephone number is (571) 272-7311. The examiner can normally be reached on 8:30 A.M. to 6:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nelson D. Hernandez
Examiner
Art Unit 2622

NDHH
July 18, 2006

VIVEK SRIVASTAVA
PRIMARY EXAMINER